

axis and slidably mounted for advancing and retreating linearly and radially relative to said central axis,

inner surfaces of said chuck fingers serving as chuck surfaces for chucking the work, and outer surfaces of said chuck fingers being tapered at least at tip end portions thereof, tapering inward toward said central axis approaching the tips, for contact with an inlet of the insertion hole; and

drive means for advancing and retracting said chuck fingers linearly and radially relative to said central axis and for controlling a chucking force exerted by said chuck fingers.

3. (Twice Amended) A work chucking/inserting apparatus for chucking a work, for aligning the work with an insertion hole and inserting the work into the insertion hole, said apparatus comprising:

three or more chuck fingers and three or more hole position detecting fingers, said chuck fingers being arranged in circumferentially spaced positions around a central axis and slidably mounted for advancing and retreating linearly and radially relative to said central axis,

said hole position detecting fingers being arranged in circumferentially spaced positions and pivotable inwards and outwards relative to said central axis, about pivot points on base end portions thereof,

inner surfaces of said chuck fingers serving as chuck surfaces for chucking the work, and outer surfaces of said hole position detecting fingers being tapered at least at tip end portions thereof, tapering inward toward said central axis approaching the tips, for contact with

an inlet of the insertion hole; and

drive means for advancing and retracting said chuck fingers linearly and radially relative to said central axis and for controlling a chucking force exerted by said chuck fingers.

13. (Twice Amended) A work chucking/inserting apparatus for chucking a work, for aligning the work with an insertion hole and for inserting the work into the insertion hole, the insertion hole having a chamfered inlet, said apparatus comprising:

three or more chuck fingers,

said chuck fingers being arranged in circumferentially spaced positions around a central axis and slidably mounted for advancing and retreating radially,

inner surfaces of said chuck fingers serving as chuck surfaces for chucking the work and each having a portion tapering inward toward said central axis approaching a distal end thereof,

end faces of said distal ends of said chuck fingers being at least partially flat for coming into abutment against a wall surface which surrounds an inlet of the insertion hole,

projections depending from close to inner peripheral edges of the end faces of said chuck fingers, each of said projections having an outer surface tapering inward toward said central axis approaching a distal end thereof, for mating with the chamfered portion of the inlet of said insertion hole when said work is inserted into said insertion hole,

tracer means for, when the outer surfaces of said projections come into contact with the inlet of the insertion hole, reorienting said apparatus to bring said central axis into alignment with a central axis of the insertion hole, and

pushing means for pushing said work toward the insertion hole.

20. (Amended) A work chucking/inserting apparatus for chucking a work, for aligning the work with an insertion hole and for inserting the work into the insertion hole, said apparatus comprising:

three or more chuck fingers,

said chuck fingers being arranged in circumferentially spaced positions around a central axis and slidably mounted for advancing and retreating linearly and radially relative to said central axis,

inner surfaces of said chuck fingers serving as chuck surfaces for chucking the work, and outer surfaces of said chuck fingers having at least at tip end portions thereof surfaces extending parallel to said central axis for contact with an inlet of the insertion hole; and drive means for advancing and retracting said chuck fingers linearly and radially relative to said central axis and for controlling a chucking force exerted by said chuck fingers.

24. (Amended) A work chucking/inserting apparatus according to claim 21, wherein the inlet of the insertion hole is chamfered, and the tips of the outer surfaces of said hole position detecting fingers are shaped to mate with the chamfered portion when the work is inserted into the insertion hole.

REMARKS

As noted in applicants' previous response filed December 26, 2002, reciprocating radial movement of the chuck fingers 65 is driven by a motor 66 as is described at page 20, lines 13-21